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ABSTRACT

This paper describes the Action Research (AR) Team model for joining classroom observations with collegial interaction among university faculty, teaching assistants, and university students to improve pedagogy and the retention of diverse students in higher education. The paper includes a progress report of efforts to develop the model and apply it on a pilot basis at New Mexico State University. In the professional fields in which minorities and women are presently under-represented, science, engineering, and mathematics, the need for student retention efforts is seen to be especially important. The AR teams are described as part of efforts to retain minority students as they attempt to: (1) identify teaching strategies and aspects of the classroom environment and dynamics of classroom interaction that may impede student performance; (2) reduce differential treatment of students and improve the pattern of interactions; (3) increase use of non-stereotypical interactions, materials, and activities; and (4) provide more equitable support and motivation in the classroom for female and minority students. An appendix compares the workforce composition for women, African-Americans, and Hispanics in selected fields of employment and composition for those groups in United States population. (Contains 28 references.) (MAH)

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Action Research Teams
A Means to Transform Teaching and Empower Underrepresented Students in the University Classroom

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and

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Presented to

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in American Higher Education
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Abstract

A model for professional development of university faculty and instructional staff that fosters academic achievement and understanding of under-represented students will be the focus of this session. The Action Research Teams (hereafter AR Teams), envisioned in the model of professional development, are mechanisms to actively engage university faculty and students in a process of on-going formative evaluation to encourage the implementation of strategies to improve classroom dynamics immediately. *Action Research* is an ongoing effort to reflect on educational practice in order to identify and implement improvements. In the educational setting, participants come to view themselves as capable of locating the resources to significantly improve students' learning experiences. In the model, AR Teams couple classroom observations with collegial interaction among university faculty, teaching assistants, and university students to create a bottom up model for improved pedagogy and positive changes to improve the retention of diverse students in higher education. In addition to a discussion of the AR Team model, planning efforts to further develop the model and apply it on a pilot basis are discussed. This session should particularly benefit conference attendees interested in enhancing faculty interaction with under-represented students, improved pedagogy to enhance teaching and retain diverse students, and in fostering institutional change that is long lived and effective in improving the life chances for minority students and women.

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Introduction

U.S. Department of Labor statistics (1995) suggest that the participation of women and minorities varies greatly among various labor categories. Women and minorities find employment in social services, health services, and education careers, but are less likely to be employed in engineering and research careers. At the same time, demographic shifts in the U.S. population suggest that minorities constitute a growing proportion of the available workforce while unemployment rates among minority job-seekers remain high. Similarly, women are more actively seeking employment opportunities, although their representation among the various labor categories remains concentrated in the helping professions (U.S. Department of Labor, 1995).

These employment realities faced by under-represented groups suggest that educational opportunities for women and minorities that will encourage more equitable participation in the workforce are critical, not only as a means to achieve social equity, but as a means to preserve economic stability (Martin, 1994). While women and minority students have been entering our universities in increasing numbers since the advent of equal opportunity in education legislation during the 1960's and 1970's, student retention has become a persistent problem for American higher education. In those professional fields in which minorities and women are presently under-represented in the workforce, science, engineering, and mathematics (hereafter SEM), student retention

is especially problematic. The National Science Foundation reported that nationally the attrition rate for SEM fields is 60 percent, with the rate of loss estimated to be 35 percent between the freshman and sophomore years, suggesting that the early years of university experience are critical in the retention of SEM students (National Research Council, 1991).

In our home state, New Mexico, 50 percent of the students entering college SEM departments are women, while 72 percent of the students who ultimately complete their degrees in SEM fields are men. In some post-secondary institutions in New Mexico, as many as 50 percent of the women qualified for SEM programs fail to complete their academic training in these fields (U.S. Department of Education, 1994).

Due to low retention rates of minority students in higher education across the United States, much attention and research has been directed toward the issues and concerns of minority students nationwide. Low student retention rates are the subject of study by institutional research departments and higher education scholars (Solis, 1995). While many factors influence a university student's decision to remain or leave a particular field of study or the pursuit of higher education entirely, one factor considered to be relevant to minority students is what some argue is the openly hostile atmosphere minority students encounter within the higher education environment (Bailey, Tisdell, and Cervero, 1994).

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While most professors do not consciously treat students unfairly, differential treatment often occurs. Egalitarian beliefs among faculty may be widely held, but unconscious patterns of interaction among faculty and their students may suggest to minority students that they are not valued class members. Sadker and Sadker (1994) found that faculty interactions are sensitive to the gender, race, and ethnic background of the students. They also observed that faculty interact in a positive, supportive, and motivational way with students from whom they expect the most. Students are less apt to learn from someone they feel doesn't like them or who doesn't expect them to learn.

Bailey, Tisdell, and Cervero (1994) identify that minority students are excluded from opportunities to be mentored by senior faculty or are often assigned to minority faculty although the student's academic interests may be more closely aligned with those of non-minority faculty members. They report from an American Association of University Women 1992 study that indicates that Anglo males typically receive more classroom attention and more positive reinforcement by faculty. Also, Moses (1990) found that Anglo males are most often chosen to be spokespersons, reporters, or leaders of classroom peer study groups even when female students outnumber males. This work suggests that the dynamics of university classroom interactions are not simply the result of faculty behavior, but reflect the attitudes and interaction patterns of peers as well.

Differential treatment of students in classroom settings is not an experience minority students encounter for the first time in higher education settings. The work of Graysol and Martin (1990) in elementary and secondary education suggests that K-12 teachers also provide more opportunities for Anglo males to respond in class and that females and minority students receive less cognitive time and teaching attention.

Ultimately, differential treatment of students related to factors such as gender, race, and ethnicity in the educational delivery system can only lead to unfair and often detrimental consequences for students. Practices in higher education that may send out messages that the thoughts and contributions of minority and women students are not worth listening to, or even considering, can, and should be, the focus of varied methods of staff development to create positive learning environments for all students.

Enhancing Equity in the University Classroom

Diversity training can provide faculty the tools to improve classroom interactions with diverse students. While professional development can aid professors in identifying areas of pedagogy that may result in differential treatment of women and minorities, traditional models of professional development opportunities related to equity issues commonly are imposed from the top down. Mandated training sessions regarding equity are often times merely tolerated by faculty and at worst are resented

as another bureaucratic requirement imposed by administrators who are far removed from the reality of classroom experience. At best, top-down strategies have minimal effect on the behavior of faculty because their expertise and goodwill are not recognized or utilized in the training. While knowledge about educational innovations may be shared within the confines of top down approaches and adoption of new methods may occur, maintaining new strategies after training opportunities cease occurs far less frequently (Berman & McLaughlin, 1978).

In contrast, an action research model of professional development fosters collaborative work as participants in the educational process engage in active inquiry and reflection about the redefinition and reformation of schooling experiences for diverse students in the learning community. *Action Research* is an ongoing effort to reflect on educational practice in order to identify and implement improvements.

AR Teams in the University Setting

In the professional development model for university faculty and instructional staff that we propose to foster academic achievement and understanding of under-represented students, AR Teams will be composed of an individual instructor, a graduate assistant, and students participating in the particular course. AR Teams will participate in on-going formative evaluations to identify teaching strategies and aspects of the classroom environment and dynamics of classroom interaction that may impede student performance. Classroom observations will be utilized to

assist in the identification of areas for improvement and the results of the periodic observations will be used to foster team discussion and reflection to encourage the implementation of change strategies immediately.

The use of AR Teams follows current wisdom regarding educational change and reform. Fullan (1995) suggests that

> neither top-down nor bottom-up strategies for educational reform work. What is required is a more sophisticated blend of the two...The way that systems change for the better is that individuals and small groups of individuals intersect, and find kindred spirits, locally and centrally. Breakthroughs occur when productive connections add up to create growing pressure for systems to change. The more that top-down and bottom-up forces are coordinated, the more likely that complex systems will move toward greater effectiveness.

At the heart of the action research team model is the desire to support the development of a culture of research by all stakeholders in the learning community. Based on the literature on change, true change takes place as participants identify their own desires (Fullan, 1995). The writers experience, as well as the research, support the transformative impact of engaging faculty, instructional staff, and students in the action research process.

The model uses graduate assistants trained in classroom observation techniques to assist faculty to collaborate with each other and with students to identify current practices that warrant modification. Through self motivating strategies and collegial interaction, participating faculty, instructional staff, and students access new styles of teaching that encourage

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the empowerment of under-represented students in the learning community.

In this action research program, faculty examine the impact of their behavior on classroom dynamics and bring professional judgment to the process, which is an important factor in improving teaching (Porter & Brophy, 1988). The analysis of the impact of their own classroom interactions on learning fosters the process of pedagogical change.

The action research team model has three major objectives:

1. reduce differential treatment of students and improve the pattern of interactions as indicated by classroom observations;
2. increase use of non-stereotypical interactions, materials, and activities; and
3. more equitable support and motivation in the classroom for female and minority students.

The Action Research Team model also equips students with knowledge, leadership skills, and sensitivity to foster academic success for themselves and others. The program can be a vehicle that will enable students upon graduation to be instruments of empowerment for the future. As students pursue their own careers, the exposure to culturally sensitive teaching during their university experience will allow them to apply similar skills in their own professional settings reaching far beyond the borders of a university campus.

Description of AR Team Program

Over the period of an academic year, AR Teams will meet once a month with facilitators. Initially these meetings will provide opportunities to explore general issues of classroom dynamics. During the following months, data regarding the frequency of observed behaviors in the classroom that may impede student achievement will be collected during one-half hour sessions each month. The following month, the AR Teams will meet with the facilitator to discuss their ideas for improved classroom dynamics and to plan for implementation of new strategies to improve equity. Through this program, faculty and students will become aware of unconscious personal behaviors that result in differential treatment and take actions to reduce their occurrence and possible negative consequences.

Seeking Institutional Support for the AR Team Effort

For the AR Team effort to be successful in changing faculty and peer interaction patterns, the model seeks to combine top-down institutional support with bottom-up action and reflection by faculty and student peers. Since universities are unlikely to change their teaching methods solely because it is the "fair" or "right" thing to do, the AR Team model's implementation includes demonstrating how the program supports institutional needs and concerns. In planning for the pilot program, we plan to concentrate our efforts on the following arguments. Improved academic success, retention rates, and graduation rates by

minority students achieved through the implementation of AR Teams:

1) will enhance the university's competitiveness for large federal teaching and research grants,
2) will provide enhanced student support of faculty research, and
3) this improved access to external funds and student support on faculty research will enhance the university's ability to recruit quality faculty.

Seeking Personal Commitment for the AR Team Effort

One of the key features of any change is for the participants to find a reason to participate in the process. The most common question is, "What's in it for me?" Benefits, rewards, and incentives that have clear implications for the AR Team participants have the greatest likelihood of generating the necessary levels of commitment. Complicating the development of the required incentives is the fact that not all participants are anticipated to have the same wants and needs to be fulfilled. In addition, the wants and needs of individual participants may change over time.

Theus (1989) classifies personal incentives as monetary, non-financial, and normative. Monetary incentives include regular compensation, cash rewards, prizes, travel money and research funding and grants. Non-financial incentives include symbolic awards and recognitions such as honorary titles. Normative incentives include peer pressure, student pressure and inclusion

in university governance.

Monetary incentives are one means that can be used to support the AR Team effort by building AR Team participation into the faculty evaluation process. When universities implement an average pay increase for university faculty and staff (e.g. 5%); generally, all faculty and staff will receive a portion (e.g. 1-2%), while the remainder (e.g. 3-4%) is dispersed based on merit. If AR Team participation were considered in the university evaluation process, participating faculty would receive monetary incentives through regular compensation for their successful participation in the program. Alternatively, cash awards or additional travel allocations could be used as methods of providing AR Team faculty participants with monetary incentives.

Considering the resource constraints universities face, non-financial incentives may be a more feasible means to provide support to AR Team participants than providing monetary incentives. Providing institutional recognition of AR Team participants at annual award ceremonies or in institutional publications and considering AR Team membership during tenure and promotion reviews are examples to be considered.

Normative incentives can be provided to faculty and student AR Team participants by inviting recognized prestigious faculty to be among program initiators and by involving students and faculty governance leaders in program planning. Support of the president, deans, and department heads for faculty participation

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will also be solicited to provide normative incentives for this program. The support of key positional persons in the university and the participating faculty will encompass top-down and bottom-up strategies to ensure the AR Team effort's success.

Implementation Considerations for AR Team Efforts

Implementing AR Teams as a method to foster enhanced faculty interaction with under-represented students, improve pedagogy to enhance teaching and retain diverse students, and foster institutional change that is long lived and effective in improving the life chances for minority students and women, it is important to recognize the unique aspects of the university setting. The composition of the university community, both faculty and students, the organizational culture of the institution, and the broader cultural environment in which the university fulfills its mission will all influence the implementation of the AR Team effort.

We know from the research on effective change processes that incorporating these unique aspects of institutional life and providing an opportunity for adaptation of the program are necessary to initial success and will be critical to long lived sustenance of the AR Team model's implementation. To foster a sustained effort, we recommend a pilot effort as an initial step to identify issues related to classroom dynamics within a particular university setting (Fullan, 1985; Berman & McLaughlin, 1978; Rogers, 1962).

In our efforts to pursue implementation of the AR Teams at

our home institution, New Mexico State University, we are presently working with academic and administrative staff to develop a pilot study for the campus. The following description is a progress report of these efforts.

Proposed Pilot AR Team Program

A number of unconscious patterns of behavior related to classroom dynamics and differential treatment of students have been shown to occur through research in educational settings (Bailey, Tisdell, & Cervero, 1994; Sadker & Sadker, 1994; Tisdell & McLaurin, 1994; AAUW, 1990; Graysol & Martin, 1990). Behavior patterns that have been observed in K-12 settings include the number of interactions between faculty and students, the length of time the faculty waits for a response from the student, the type of response the faculty gives the student (praise, remediation, criticism, acceptance, ignoring), or the kinds of questions the faculty asks the student (simple recall, stating opinion with reasons, summarizing, organizing information) (Graysol & Martin, 1990).

In the pilot study we propose, these behavior patterns are being considered as possible targets for the observation process. However, the instructional approaches used in the university setting and the relationships among faculty and students in the university are quite different from K-12 traditions of teaching practice and traditional K-12 student-teacher relationships. To explore the magnitude of these perceived differences in the instructional environment, we propose to solicit input from

university students about their perceptions of classroom dynamics and their experiences with differential treatment by faculty and student peers.

Student Input

Input from graduating seniors from the various colleges will be solicited through surveys and/or interviews. While there is evidence to suggest that minority students and women are often reticent to participate in classroom settings and may be particularly hesitant to share experiences regarding differential treatment or negative classroom dynamics (Tisdell & McLaurin, 1994), we propose that graduating seniors are free to be completely honest with the interviewers because they are leaving the university and anything they share about their experiences can not negatively influence them. In addition, these students have considerable experience with the challenges to equity students encounter and were able to survive these challenges for more than four years. From their input, additional behaviors will be identified to become the foci of classroom observations.

Collection of Examples of Differential Treatment

For the Pilot AR Team Program, faculty volunteers will be video taped while teaching class to collect examples of the differential treatment of students by faculty and of classroom dynamics that may impede student achievement. These videos will be edited into a format suitable for training Pilot Program AR Teams.

Pilot Program AR Team members, will serve as observers and

data collectors. The Pilot Program AR Team members will be trained about the behaviors to be observed, the data collection instruments, and given practice in observational techniques using the prepared video tapes.

Pilot Program Classroom Selection

The students at the greatest risk of attrition are the freshmen and sophomores (National Research Council, 1991). Therefore, we will solicit the support of faculty who teach the first and second year undergraduate courses. Four levels of faculty teach these targeted courses; tenured faculty, tenure-track faculty, non-tenured faculty and graduate teaching assistants. One instructor at each level from each of the five colleges (Colleges of Engineering, Education, Arts and Science, Agricultural and Home Economics, and Business) will be solicited to participate in the Pilot Program AR Team effort. This selection strategy will result in twenty classes participating in the pilot program.

AR Team Program Example

To examine how the results of classroom observations will be utilized by the AR Teams, an example using sample observational data is provided below. The sample is based on one thirty minute observation of a graduate level education course.

A simple example of differential classroom treatment is the number of times a faculty member interacts with each student identified by racial/ethnic and gender categories. Figure 1 presents sample data of the number of interactions recorded

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during a one-half hour observation for each ethnic/racial and gender category.

Number of Interactions		
Student Group	Number of Interactions	
	Male	Female
European-American	////	////
African-American		
Hispanic-American	///	///
Asian-American/Pacific Islander		
Native-American		
Other		

Figure 1
Number of Faculty-Student Interactions by Ethnic/Racial and Gender Categories

When examining the data in Figure 1, it might appear there is not much disparity between the various student groups. There is an equal number of interactions for European-American males and females, and Hispanic-American students have only one less interaction.

However, when the AR Team calculates the percentage of students composing the class by ethnic/racial and gender categories and compares this information with the percentage of total faculty-student interactions that occurred, a different picture of the classroom environment emerges. Figure 2 compares the percentage of faculty-student interactions and classroom composition by ethnic/racial and gender categories.

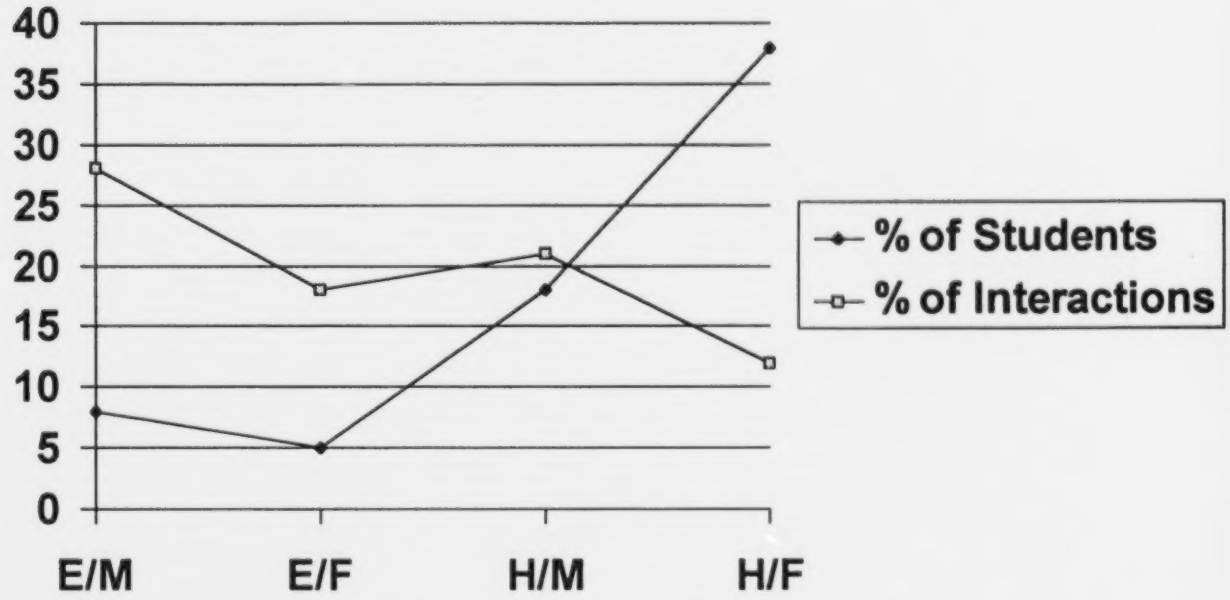

Figure 2
Comparison of the Percentage of Faculty-Student Interactions and Class Composition by Ethnic/Racial and Gender Categories

The additional analysis by the AR Team now identifies that while the European-American males make up only 8% of the class, they received 28% of the interactions with the faculty. Hispanic-American females, however, who make up 38% of the class, received only 12% of the faculty interactions.

The AR Teams will discuss this information and the faculty member involved can then evaluate these results in light of the goals of reducing interaction disparity among the students. Further AR Team discussion will then occur to identify strategies that can be implemented to facilitate more equitable faculty-student interaction patterns.

Conclusion

The AR Team example provided, and the AR Team model proposed, identifies the challenges to be encountered in developing strategies to improve pedagogy and enhance the academic success of minority students and women. The AR Team model's focus on individual inquiry, reflection, and positive action is complex, time-consuming, and relies on institutional and personal commitment to create improvement in the educational environment. These challenges, however, should not be perceived as obstacles. When faculty and students examine the impact of their own behaviors on classroom dynamics, bring personal judgment to the process of change, and analyze the impact of their behavior on the learning environment, powerful forces will coalesce to achieve personal transformation and positive action to improve teaching, retain diverse students, and foster institutional improvement that is long lived and effective in improving the life chances for minority students and women.

Appendix A
Workforce Composition for Women, African-Americans, and Hispanics
Comparing Selected Field of Employment and
Composition for Women, African-Americans,
and Hispanics in U.S. Population

Field	Women	African/Am	Hispanic
Social Services	80%	17%	7%
Health Services	79%	13%	6%
Elem/Secondary Education	74%	11%	7%
Finance, Insurance	58%	9%	6%
Legal	55%	5%	4%
College/University Education	52%	10%	5%
Business	51%	8%	8%
Research/Development/Testing	43%	6%	4%
Engineering	21%	3%	5%

Table 1
Source: U.S. Department of Labor, Bureau of Labor Statistics
Labor Force Statistics from the Current Population Survey (1995)
http://stals.bls.gov.80/cpsaatab.html.empstat

	Women	African/Am	Hispanic
% of U.S. Population	51%	12%	9%

Table 2
Source: U.S. Census Bureau
1990 U.S. National Census Data
http://cedr.lbl.gov/cdrom/lookup

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